Cost benchmarking

In a nutshell

Summary overview
Choices related to waste management are greatly affected by economic factors; carrying out cost benchmarking by comparing the cost structure of a municipality with data of other municipalities is BEMP as it allows the identification of optimisation options which may open the door to more environmentally friendly practices. Cost benchmarking can be carried out internally, by an independent third party or in cooperation with other municipalities. Cost figures analysed typically include costs for waste management services and for the disposal of certain waste fractions as well as revenues gained from the sale of waste that is sent to preparation for reuse or recycling and other by-products. All relevant waste fractions generated within the territory considered and belonging to MSW need to be taken into account in the cost benchmarking. Comprehensive analyses include costs for waste collection, waste treatment (sorting, recovery, disposal, etc.) including the management of closed landfills, staff costs and all other waste-management-related costs.

Waste management area							
Cross-cutting	MSW - strategy	MSW - prevention	MSW - collection	MSW - EPR	MSW - treatment	CDW	HCW

Applicability
Cost benchmarking can be applied within an area (at local or national level) where waste management conditions are comparable and where there is a uniform legal framework. However, in some cases, strong deviations occur due to specific conditions. Cost benchmarking is particularly relevant for areas with poorly performing waste management systems, in order to support the shift to better performing waste management options.

Specific environmental performance indicators
• Regular participation in a detailed cost benchmarking study (y/n). • Total MSW management cost per resident[1] per year (EUR/capita/year).

[1] In areas where the presence of non-resident population (e.g. tourists, commuters) is relevant all over the year or during specific seasons, the number of residents can be adjusted and the number of population equivalent calculated, as presented in the best practice Common Environmental Performance indicators. The same considerations on resident and non-resident population applies to all the relevant environmental performance indicators reported in the other best practices; Local waste prevention programmes and Schemes fostering the reuse of products and preparation for reuse of waste.

Description

Waste management is greatly affected by economic factors; therefore, it is very helpful to carry out cost benchmarking in order to reflect the cost structure of a certain municipality (city, village or county) and to eventually identify optimisation options.

Cost benchmarking can be carried out by an independent third-party organisation, or internally by a local public administration of a considerable size, or in cooperation with other municipalities. Cost figures analysed can include costs for waste management services and for the disposal of certain waste fractions as well as revenues gained from the sale of waste that is sent to preparation for reuse or recycling and other by-products. All relevant waste fractions generated within the territory considered and belonging to MSW (paper/cardboard, glass, plastics, biowaste, green cuttings, scrap metal, non-ferrous metals, residual waste from households etc.) must be taken into account in the cost benchmarking study.

In more detail, in the evaluation of total costs, the following costs are usually considered:

- costs for collecting the different waste fractions (e.g. residual waste, biowaste, paper);
- costs for the treatment/disposal of residual waste (e.g. incineration) and recycling/energy recovery of waste fractions with distinction between municipality-owned plants and third-party plants;
- costs for operation, closure and management of closed landfills (leachate treatment, recultivation, etc.);
- costs for staff and administration related to waste management;
- miscellaneous costs.

In addition, the total costs can also include costs for services provided:

- by private waste management companies on behalf of the municipality;
- by the municipality itself;
- by municipalities providing services for another municipality.

In the evaluation of revenues from recycling/recovery activities, the following ones can be considered:

- selling electricity or/and heat from incineration of refuse-derived fuels, residual waste, biogas from anaerobic digestion of biowaste or landfill gas;
- selling biogas from anaerobic digestion;
- selling separately collected or separated paper/board;
- selling separately collected packaging;
- selling separately collected glass;
- selling separately collected or separated scrap metal;
- selling compost;
- fees charged to businesses for waste collection and disposal.

The difference between the total costs and the revenues is called “uncovered costs” and they are usually paid by the annual waste fee charged to the citizens of the municipality.

Once the cost benchmarking study is completed, analyses on the data could support the identification of improvement options in waste management processes (e.g. collection of the different fractions) or in the waste strategy (e.g. type of fractions collected) implemented at local level.

Cost benchmarking can also be used to compare the costs of waste prevention measures with the cost savings due to the decreased amount of waste to be managed.

Figure 1 shows an example for the evaluation of the main cost categories for 33 counties and 11 cities in Germany (ia GmbH, 2015).

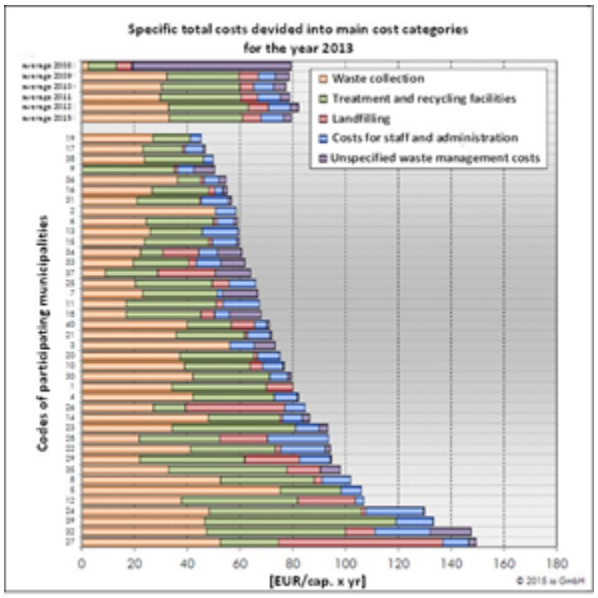


Figure 1. Specific waste management costs for the main cost categories for 2013 of 33 counties and 11 cities in Germany providing waste management services to 6.3 million citizens in total, based on ia GmbH (2015)

The corresponding annual waste quantities per capita are illustrated in Figure 2.

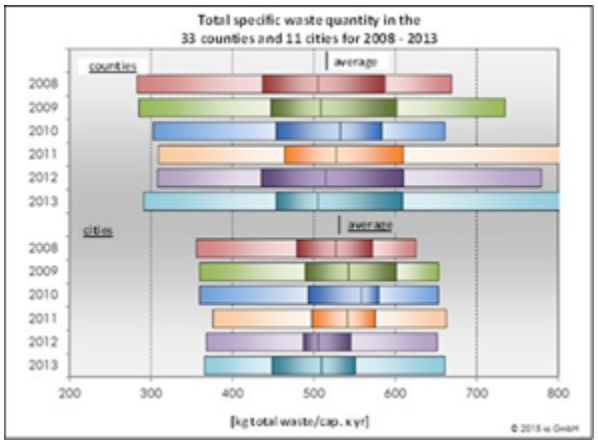
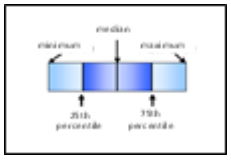


Figure 2. Total specific waste quantities of the participating 33 counties and 11 cities in Germany from 2008 to 2013, based on ia GmbH (2015)

[1]

[1]



The values are presented as median, minimum, maximum and 25^{th}/75^{th} percentiles as indicated in the figure above.

Environmental benefits

Cost benchmarking is not directly associated with an improved environmental performance. However, it can contribute to an optimisation of services such as the collection of the different waste fractions. In this respect, it can encourage municipalities to increase the number of waste fractions that are collected separately as the figures demonstrate that advanced collection systems do not necessarily lead to significantly higher costs (Figure 3).

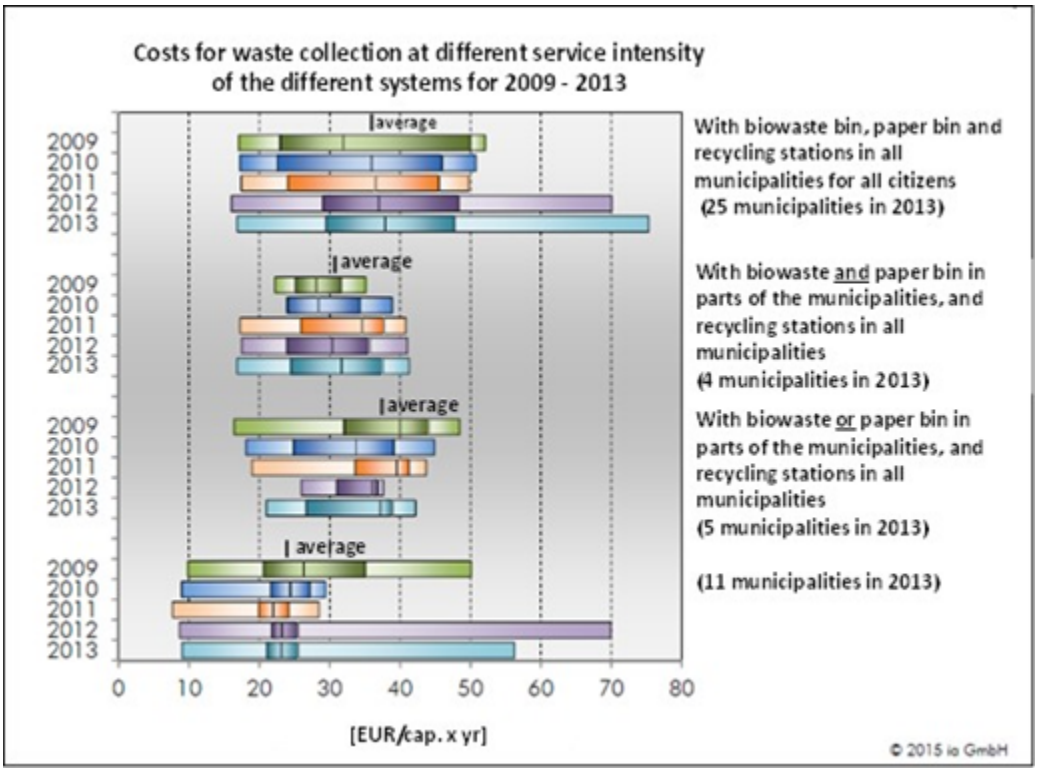
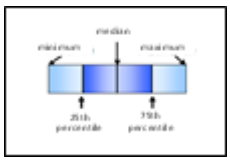


Figure 3. Costs for waste collection at different service intensities of the different systems for 2009–2013, based on ia GmbH (2015)[1]

[1] 

Side effects

There are no cross-media effects as the technique is not associated with any significant energy or material consumption or emissions.

Applicability

Cost benchmarking can be applied in a county/region or at the national level, where waste management conditions are comparable and where there is a uniform legal framework. In order to carry out a cost benchmarking of waste management, the public administration or the waste management company need to have a full and detailed view/control of all operations and mass flows involved. Concerning comparability of cost figures, there may be individual cases where strong deviations occur due to specific conditions. For instance, for municipalities with a high number of tourists the cost

figures in [EUR/capita per year] are significantly different; as a consequence, in this case, a cost indicator [EUR/t total waste] may be more appropriate. Cost benchmarking could be very useful when assessing existing poorly performing waste management systems in order to support the shift to more efficient ones.

A municipality or a county joining a cost benchmarking system should be able to produce cost estimations based on its accounts. For those, full cost accounting is preferred against yearly outlay balances, and an appropriate allocation procedure should be applied. A detailed description of cost estimation and allocation procedures is included in the best practice Link to other relevant reference documents for best practices.

Economics

Municipalities taking part in the cost benchmarking exercise performed by the independent third-party organisation ForumZ (presented in the Operational data section) pay an annual fee to ForumZ which organises the collection and evaluation of cost data. This fee is in the range of EUR 1 000 and EUR 4 000 per year, depending on the size of the municipality.

According to Figure 1, waste management costs of different cities, counties or municipalities vary by up to a factor of 3. For individual services, the range can be bigger, e.g. up to a factor of 8 for waste collection. For instance, in 2013, the cost for waste collection with biowaste bins, paper bins and recycling stations in all municipalities for all citizens varied between EUR 17 and EUR 76 per capita per year. If the costs for the waste management of a region, e.g. a county, with 200 000 citizens at the upper end of the range can be reduced by only EUR 5 EUR per capita per year thanks to cost benchmarking and the improvement of the waste management system, the total cost savings in that region could reach EUR 1 million per year. This can be achieved by cost benchmarking for which the expenditure as a network member is EUR 0.02–3 per capita per year.

Driving forces for implementation

The improvement of the waste management system and the consequential potential cost reduction for waste management is the main driving force for implementing cost benchmarking.

Reference organisations

ForumZ, a network including a number of municipalities and counties in Germany, is so far the only one which has been carrying out cost benchmarking for several years (2008–2013). The latest report for the figures of 2013 is dated March 2015.

In Germany, the Association of Municipal Waste Management and City Cleaning (VKS) as part of the Association of Municipal Enterprises (VKU) is also carrying out benchmarking studies both for technical and cost aspects, but not as regularly and specifically as ForumZ. However, so far a benchmark exercise has been carried out nine times (VKS, 2015); thus the development can be visualised and used for optimisation strategies. In the last rounds, about 70 counties, cities and municipalities took part. The data are processed and evaluated by third parties (Dornbusch, 2015).

The French Agency for the Environment and Energy Management (ADEME) has developed a cost matrix, which is available for local authorities and allows cost benchmarking (ADEME, 2015). Also, the Paris Region Waste Observatory (ORDIF) is applying cost benchmark tools (ORDIF, 2015).

Literature

ADEME (2015) information on the concept of cost benchmarking is available on the ADEME website: http://www.ademe.fr/collectivites-secteur-public/integrer-lenvironnement-domaines-dintervention/dechets/maitriser-couts-ajuster-financement/dossier/connaitre-couts/outils-gestion-dechets-matrice-couts-methode-comptacoutr, last access June 2017.

Dornbusch, H.-J. (2015). Benchmarking und Erfahrungsaustausche für die Abfallwirtschaft – aus der Praxis für die Praxis (Benchmarking and exchange of experiences – from practice to practice. Presentation at the VKS/VKU-

Landesgruppenfachtagung “Leinen los!“ in Hamburg in October 2015,

http://www.iswabeacon.obladen.de/images/presentations/Dornbusch.pdf, last access September 2017.

ia GmbH (2015). Abfallwirtschaftliche Gesamtkosten (total costs for waste management). Report on cost benchmarking for the waste management of 33 counties, 12 cities and one community in Germany for the year 2013 (in German – unpublished). ia GmbH is a small engineering company with about six employees which already started to systematically collect and evaluate data on waste management at municipality level in 1996 (see more information on ia GmbH on www.ia-gmbh.de).

Paris Region Waste Observatory (ORDIF) (2015). Connaître, analyser, et comparer ses coûts de gestion de déchets. March 2015.

VKS im VKU (Association of Municipal Waste Management and City Cleaning (VKS) as part of the Association of Municipal Enterprises (VKU)) (2015). Das Benchmarking-Projekt (The Benchmarking Project). http://www.vksimvku-benchmarking.de/das_projekt.php?thema=projekt, last access September 2017.